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THE MENTAL EXAMINATION OF REFORMATORY CASES.¹

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This paper will discuss the methods of mental examination for the purpose of determining only the grade of intelligence, and will not concern itself with any of the other forms of mental deviation from the normal. It will make no assumptions in regard to the relations between mental deficiency and crime, except in so far as to maintain that we cannot know adequately what this relationship is before we know much more than we now do about the mental status of criminals. We are not entirely ignorant of the mental status of reformatory cases, from the very fact that they are reformatory cases. A few preliminary words about this will give us some idea as to the nature of the problem of determining their exact grades of intelligence. The typical reformatory cases range from fifteen to twenty years of age. They are either in school or have left school and are engaged in some remunerative occupation. These two facts eliminate low grade feeble-mindedness, all idiots and practically all of the imbecile grade. On the whole, therefore, we are dealing either with normals or with high grade feeble-minded. Their age indicates maturity, or approximate maturity of intellectual development. This makes them the most difficult cases possible to diagnose as to grade of intelligence. Obviously small deviations from the normal intelligence are more difficult to determine than large deviations. But for any degree of deviation it becomes more difficult with the increasing age of the case. The latter is due to two factors. First, the rate of development of intelligence decreases with age, so that for older children the difference between two consecutive ages is relatively very small as compared with the difference between two consecutive ages for younger children. Second, what we term "intelligence" is a complex of many mental functions, mental traits and acquisitions. The mind not only becomes much more complex with age, but individual variations of the normal increase. In scientific terms, the measurement of a few things determines the intelligence of a young child, but many things have to be considered to determine the intelligence of the older one.

With this much in mind, let us state an important conclusion at the outset. This is that we have at present no method or methods of determining the exact grade of intelligence of the average reformatory case that is reliable in a satisfactory degree. The following discussion of the methods in use will attempt to verify this conclusion, and also show what methods are best and how they must be used to get the most reliable results.

If we use the term "clinical" in as wide and loose a sense as

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it has become customary to do, we may group all methods into two classes, (a) clinical, and (b) mental tests. A clinical examination includes a great variety of inquiries. The exact procedure has always varied extremely with different examiners. Many efforts have been made to systematize that procedure with the use of clinical blanks, syllabi, systems for recording clinical data, etc. The main lines of inquiry that a comprehensive clinical syllabus aims at are (1) ancestry; (2) parental factors from conception to birth; (3) infancy and childhood; (4) present physical examination, including (a) anthropometric measurements, and (b) medical examinations; (5) mental examination, inquiring into habits, occupations, interests, school records, and intelligence by use of test questions. I want to speak of these several phases of the clinical examination as a means of determining grade of intelligence in the individual case. First, the objections.

(a) In the first three lines of inquiry stated one insurmountable difficulty lies in the impossibility of getting reliable data on the points on which the syllabus calls for it. It deals with facts about the past, and they are facts about which there is for the most part no record except the memory of the individuals now interested. A scientific procedure objects to any memory record of a fact being accepted. The reasons for this objection have recently been enforced by laboratory studies in psychology proving that under ordinary circumstances the average man is mistaken in from one-fifth to one-fourth of what he conscientiously relates as true from memory. In the present case the situation is much more unfavorable because often even a memory record is not obtainable, the person in question having deceased or not being accessible, and because the real memory of these individuals is peculiarly influenced by misinterpretation and ignorance, prejudice and unwillingness. Thus a syllabus may be ever so complete on these questions, and the data it suggests might be very valuable evidence as to grade of intelligence, and yet the practical usefulness of the syllabus be very small. Usually no data can be obtained at all on half the matter called for. What is obtained is of questionable value because of the high degree of inaccuracy in the first place.

(b) A second general difficulty with the clinical syllabus lies in the fact that much of its inquiry concerns possible causes instead of symptoms of grade of intelligence. The relation between possible causes of mental deficiency and grade of intelligence is so very remote that it is absolutely unsafe to make any inference in the individual case. Many cases of even low grade feeble-mindedness are entirely negative as to causes, either hereditary or acquired, and many persons of normal intelligence have a very bad heredity and have grown up under the influence of numerous so-called acquired causes of mental deficiency at the same time. The presence of one or several factors usually listed as causes of feeble-mindedness in the family or personal history is of little or no significance.

(c) A third objection to the clinical examination is the undue reliance placed in various physical characteristics as symptoms of mental deficiency. I refer to such matters as weight, size and shape of head, assymetries, anomalies of teeth, palate, tonsils and other glands, of the senses, musculature, and nervous reactions. The general fact, so far as known, about most of these is that they occur with more or less frequency with cases below normal intelligence. But they occur also with normals, and the difference in frequency of occurrence with the two classes has not yet been found to be very large for any physical characteristic or defect. Taking any one of these alone, it is at once obvious that the great majority of the feeble-minded, including all grades, is not affected by it, which means that in the majority of cases of feeble-mindedness we would fail to recognize the mental deficiency if our diagnosis were based on this physical characteristic. It would also mean that almost as many normals would be diagnosed as feeble-minded as cases that are really feeble-minded, because of the presence of the physical trait.

(d) Fourthly, the procedure in the direct mental examination in which no standardized tests are used. Facts that may be gathered in regard to the individual's occupations, their nature and his success in them, his interests, plans, ambitions, etc., and his personal habits are about on the same basis with reference to their significance as to grade of intelligence as the preceding. They are difficult to gather in reliable form, and their relation to intelligence is in part known not to be close, and in part not known at all. School records stand on a much higher plane, and yet are recognized as by themselves entirely unreliable. The fact that feeble-minded not infrequently reach the upper grades is evidence enough that school records are no safe criterion. The direct mental examination included in the clinical syllabus sometimes has two other kinds of questions. First, questions asking directly about the status of different mental functions, such as the powers of observation, of attention, the memory ability, the general disposition, emotional reactions, and so on. These questions are supposed to be answered from the personal history of the child and from incidental observations the examiner makes in the course of the general examination. There is no question about the value of reliable data of this sort in diagnosing general intelligence. General intelligence is merely the sum total of the different mental functions, according to many of the best authorities. But the syllabus simply asks these questions. It suggests no methods of obtaining answers, and every psychologist well knows that to determine the status of any mental function in a given individual is in itself a serious task, which cannot be accomplished by gathering data from a personal history and through chance observations on the general reactions of a patient. Only the grossest sort of anomaly could be detected in this way. Second, the direct mental examination of the clinical syllabus sometimes includes questions

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that are intended to give direct evidence of the grade of intelligence. These may be of the nature of problems, puzzles, or questions of information the knowledge or ignorance of which on the part of the patient is supposed to indicate grade of intelligence. These questions are of the nature of mental tests, of which I will speak later. But they lack several essentials, the most important being lack of standardization in form and procedure, and lack of norms. The responses obtained may indeed be significant; they may measure intelligence. But we cannot know this without a knowledge of the different kinds of responses obtained with different grades of intelligence. The examiner of extensive experience will obtain a rough knowledge of this sort from the examination of large number of cases. But it is not adequate for making fine distinctions. The examiner is too often mistaken in his opinion as to what kind of response goes with what grade of intelligence, even when the question does test intelligence. He is equally often mistaken in assuming that the test question is a good one, when, as a matter of fact, it bears little or no relation to intelligence.

This concludes my specific criticisms of the clinical examination for grade of intelligence. A few general remarks may be added. The clinical examination is still in high favor with good authorities. This is due to several reasons. (1) There has been no other method claiming to give the required results until the appearance of the Binet-Simon tests. (2) Expertness in its use is a matter of long experience, which results in confidence, and inability to change readily to newer methods. (3) The detailed, systematized clinical procedure gives the appearance and impression, though illusory, of a thorough-going, exhaustive examination that inspires respect, and a blind faith in the accuracy of the results to be obtained with it. (4) There has not been sufficient time to acquire the necessary technical knowledge of the mental tests now in use, nor to thoroughly establish and demonstrate their reliability and practical usefulness. In the criticisms made I do not wish to imply that we should cast aside our clinical procedure for the newer methods. It should be improved, not discarded bodily. We need much serious investigation of just what the relation and correlation is between mental deficiency of different grades on the one hand, and the various actual and supposed causes and symptoms that have been discussed, on the other hand. When this has been done much of the present lines of clinical inquiry will be eliminated as of little value. The clinical syllabus should also be stripped at once of all questions for which there is no prospect of getting reliable information. The whole clinical procedure should then be standardized and systematized so as to eliminate the personal factor of the examiner. The grade of intelligence should be at once indicated from the objective results, and not estimated and judged through the experience and judgment of the examiner. Thus perfected, the clinical method would have an

important advantage over any present system of mental tests, in that it would be more comprehensive in scope, attack the problem from more different angles, and thus avoid, more than a limited number of mental tests can do, the chance errors and errors due to individual variations in just those particular functions and traits that are involved in the tests.

(b) Mental tests. 1. Some general principles. There are a number of important differences between a mental test and anything we have in a clinical examination. (a) In the mental test there is a known and close correlation between the results of the test and grade of intelligence. Just what the degree of correlation is, is indicated by established norms, which show us with what frequency, expressed in percentages, each grade of intelligence passes or fails in the test. (b) The conditions under which the test is given and the manner of giving it are standardized so that each individual gets exactly the same test in exactly the same way as every other individual, and as it was in the case of establishing the norms in the first place. (c) The interpretation and judgment of the examiner is mostly or entirely eliminated. The grade of intelligence is given directly by the objective results in the response to the test. When these conditions are fulfilled there are two ways in which the results of the mental test may fail to accurately indicate the grade of intelligence. First, it may not do so because the patient has not made his best effort to pass the test. Second, it may not do so because of an individual variation in the particular mental function, trait, or combination of functions, that are involved in the test used. It is well recognized that no single mental test will give an absolute correlation between results and grade of intelligence. Only a certain percentage, let us say seventy-five per cent., of the cases of a given grade of intelligence will pass a given test. The other twenty-five per cent. will fail because of the individual variation in the particular function tested, assuming all other facts to be eliminated. The former difficulty is relatively easily overcome. It happens but rarely that the examiner cannot establish a sufficient motive for the patient to do his best in a test, especially in the case of a reformatory inmate. I do not mean to say that the effort will be uniform from test to test or from individual to individual. But it will be nearly enough so for practical purposes. The latter difficulty is overcome in part by using groups of different tests instead of single tests, and then combining the results of all into one index of intelligence. The greater the number of tests in the group the more reliable will be the combined results, in direct proportion to the number.

2. The Binet-Simon tests. These general principles of the mental test are incorporated in the Binet-Simon system. It measures intelligence in terms of mental age by means of groups of tests, a group of five for each age, and norms for each individual test have been established. The examination of a patient involves

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the use of from four to six groups, that is, twenty to thirty individual tests, and the mental age is determined by the combined results of all. Let us consider their value in the examination of reformatory cases. We have noted that the average reformatory case is of adolescent age, and is of normal or nearly normal intelligence. In the accurate determination of the grade of intelligence of such a case the Binet-Simon tests are of little value. This is due primarily to the shortness of the scale at the upper end. In the 1908 series there are no tests for ages beyond thirteen. In the 1911 series tests for the ages of eleven, thirteen and fourteen are omitted, and tests for the ages of fifteen and for adults are added. These higher age tests largely lose their value through the absence of tests for the ages just preceding. Further, they do not by themselves give as good results as the lower age tests do. However, the important fact is that the scale cannot measure intelligence accurately higher than the mental age of ten even, because the average child attaining a mental age of ten with the tests does so, not by passing all the tests in this age group, but by failing in some of them and then passing some in the age groups of eleven and twelve. According to the rule of the system a child is given the mental age of the highest age group in which he passes all the tests, plus one year for every five tests he passed in age groups beyond this. For this part of the scale the highest age group in which the average child passes any tests at all is at least two years above the highest age group in which he passes all. Consequently, children whose true mental age is eleven or more must fall short of this in the mental age as determined by the tests. Since the true mental age of the average reformatory case is over ten, the tests can evidently have only a limited application.

The inference has been made from this by some that the Binet-Simon tests have little or no value at all in the mental examination of reformatory or similar group of cases. This claim is wrong. In practically every reformatory, if not in every, there are always a good number of cases with mental ages below ten. In fact, mental ages as low as six are not at all unusual. These are distinctly feeble-minded, and yet are, as a rule, not definitely recognized as such. The Binet-Simon tests furnish us a better means than does any clinical examination of determining the exact grade of intelligence of such cases. It gives us not only more accurate results, relatively practically free from the personal factor of the examiner's interpretations and judgment, but it is also much more expeditious.

There remains one more important matter to be considered in connection with the use of the Binet-Simon tests in examining reformatory cases. This concerns the use of the mental age as an expression of the grade of intelligence. The mental age was at first taken alone and directly as the expression of the grade of intelligence. This was an obvious mistake, as it can do so cor-

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rectly only in the case of adults, and not in the case of children. The normal child six years old, for example, has the same mental age as the adult middle grade imbecile. Next, the difference between the age and mental age was taken as representing the grade of intelligence, especially as a means of drawing the line between the normal and the feeble-minded. Two years, three years, and four years were regarded by different authors as the limits of variation in the normal. By blindly following such an arbitrary rule as this, and by failing to recognize the effect of the shortness of the scale of tests at the upper end, together with the fact that the development of intelligence gradually decreases in rate with age and comes practically to a stop at the age of fifteen, the most serious mistakes have been made in the use of the tests, and especially with reformatory cases. For instance, in one study a seventeen-year-old child is classified as feeble-minded if the mental age according to the tests does not exceed thirteen. In another study a child is regarded as feeble-minded if the mental age is less than twelve and the difference between age and mental age is more than three years. Other instances equally bad might be cited. With such a procedure many children quite normal will necessarily be classified as feeble-minded, and many more who are only somewhat below average normal will fall into this class. In consequence we have the report from one reformatory, where a survey with the Binet-Simon tests was made, that eighty-nine per cent. of the inmates are feeble-minded! Similar reports come from other reformatories and Juvenile Courts. Such figures are extreme to the point of absurdity, and show in themselves that some grave error in method has been made.

The grade of intelligence cannot be represented by the difference between chronological age and mental age (1) because the rate of development of intelligence decreases with age, and a year's difference in age and mental age represents less and less mental retardation the older the child; (2) because the older the child the more time there has been for the difference to accumulate as the result of the retarded rate of development. This has been recognized, and a plan has been suggested to represent the grade of intelligence by the ratio of the mental age to the age. Thus in the following mental ages and ages, for example, this ratio is the same in all, and the grade of intelligence is the same in all, but the mental ages alone range from one to six years, as does also the difference between age and mental age.

Mental age	1	2	3	4	5	6
Chronological age.....	2	4	6	8	10	12

Expressed in terms of per cent., these cases are all fifty per cent. of the average normal intelligence. With this plan two points must be assumed arbitrarily in order to apply it to all cases. We must assume some age for the point at which development of intelligence stops. Such an assumption is always made, and we may place it at fifteen as accurate for practical purposes. In

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the case of placing it at fifteen, we must not divide the mental age of any case by more than fifteen for the age, no matter how much older he may be. If the mental age is above ten, allowance must be made for the shortness of the scale, and no definite statement can be made as to the exact grade of intelligence. Second, we must assume some ratio of mental age to age as representing the limit between normal and feeble-minded. Eight-tenths or .80 has been suggested for this limit. For practical purposes, I should place it at .75, and regard any case that is less than 75 per cent. of average normal intelligence as feeble-minded. With .75 as the lower limit of normal intelligence we get the following relations of mental age and age as representing this limit:

Mental age.....	3	4	5	6	7	8	9	10
Chronological age...	4	5.3	6.7	8	9.3	10.7	12	13.5

The use of this ratio, or the 'intelligence quotient,' as it has been called, to represent the grade of intelligence gives a uniform plan for all ages, and mental ages, and does away with the irregularities and errors introduced by taking the difference between age and mental age as representing the grade of intelligence. Obviously, however, it does not remedy the difficulty arising through the shortness of the scale at the upper end. The accuracy of the intelligence quotient as an index of intelligence must necessarily assume the accuracy of the mental age in the first place.

3. Mental Tests Without Established Norms. There are a large number of psychological experiments that have been labeled "mental tests," but for which there are no established norms. Several different selected groups have been published, intended to be means of diagnosing grades of intelligence. These are rather misleading. They are, by definition, not tests unless they enable us to test something. But how can we judge the grade of intelligence of a case thus "tested" when we do not know what kind of result any grade of intelligence will yield with these tests? The answer is that we do know at once after they have been used. only our knowledge of the norms is not so definite and certain. But any psychologist who has tried to devise intelligence tests and establish norms for them knows that this supposed rough knowledge of norms is illusory, and very inadequate for the purpose of making fine distinctions in grades of intelligence. Elaborated technique and scientific precision in administration does not alone make a test, but only an empty showing that deceives the layman. A test without an established norm in a scientific sense of the term can have but a very limited usefulness. Psychological expertness is no substitute for norms for mental tests.

(c) Summary.

From this brief and necessarily dogmatic discussion we may now summarize the main conclusions.

1. Clinical methods of diagnosing grades of intelligence fail chiefly in that they regard a great variety of things as signs or

symptoms of grades of intelligence whose correlations with the latter are but little known, or known to be but slight.

2. Much of the clinical evidence gathered is unreliable because it is based only on memory of observation made years ago, and by parents or others who are naturally biased and usually very liable to erroneous report.

3. The Binet-Simon tests are inadequate for accurately determining the grade of intelligence of children much over ten and of normal or nearly normal intelligence, and are therefore not sufficient for the average reformatory case.

4. The Binet-Simon tests are more reliable than any other method at present available for the exact determination of the grade of intelligence of any case with a mental age of ten or less. A considerable number of reformatory cases are below this grade of mentality.

5. Serious mistakes have been made in judging the grade of intelligence of reformatory cases examined with the Binet-Simon tests from the mental ages obtained. The intelligence quotient is the best expression of grade of intelligence, and should be used in preference to other arbitrary rules that have been followed.

6. A scientifically established norm is an essential for any test of intelligence. Psychological expertness is no substitute.

7. We have at present no reliable means of diagnosing the grade of intelligence of the average reformatory case. Work now being done by a number of different psychologists will probably in the near future provide mental tests that will mark a big advance over present methods. A refinement of clinical procedure may also add to the solution of this problem.